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NCBC DAVISVILLE  
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U S EPA REGION I COMMENTS ON DRAFT FEASIBILITY STUDY ADDENDUM FOR SITE 16  
NCBC DAVISVILLE RI  
5/6/2013  
U S EPA REGION I



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND - REGION I  
5 POST OFFICE SQUARE, SUITE 100 (OSRR 07-03)  
BOSTON, MASSACHUSETTS 02109-3912

May 6, 2013

Jeff Dale, Dept of the Navy, BRAC PMO Northeast  
Code 5090 BPMO NE/JD, 4911 South Broad St  
Philadelphia, PA 19112-1303

Re: *"Draft Feasibility Study Addendum for Installation Restoration Program Site 16 for former Naval Construction Battalion Center, North Kingston, Rhode Island"*, dated March 2013, North Kingstown Rhode Island

Dear Mr. Dale:

Pursuant to § 7.6 of the Davisville Naval Construction Battalion Center Federal Facility Agreement dated March 23, 1992, as amended (FFA), the Environmental Protection Agency has reviewed the subject document and comments are below.

#### GENERAL COMMENTS

1. The text of this Addendum should specify that based on further Site evaluation, including the forensic study of Allen Harbor sediments, it was determined that sediment (although evaluated in the risk assessments and in the Feasibility Study) was not a media of concern for the CERCLA remedy because sediment contamination was not found to be site-related and does not exceed local anthropogenic background levels. Therefore, there are no sediment COPCs.
2. There are "cleanup levels" for groundwater and soil outside of the waste management area compliance boundary and "performance standards" (for monitoring) for groundwater and soil leachability inside of the compliance boundary.
3. The text of this Addendum should specify that based on re-evaluating site conditions and regulatory requirements the number and variety of soil alternatives carried forward in the Feasibility Study Addendum have been reduced to just Alternatives S-1 and S-5, along with adding Soil Alternative S-3A. Soil Alternatives S-2, S-3, S-4 and S-6 from the Feasibility Study were not re-evaluated based on the standards and conditions for soil discussed in the FS Addendum. If the Navy prefers to keep the discussion of all of the alternatives, the evaluation should group those soil alternatives that manage waste in place and those that don't.
4. Under Soil Alternatives S-1 and S-5 there is no management of soil contamination in place and therefore no waste management area. Under these soil alternatives all of the groundwater alternatives need to achieve drinking water standards and soil needs to achieve leachability standards throughout the Site (the NCP analysis should show that Soil Alternative S-1 fails to meet the leachability standards, while S-5 can achieve them). Under Soil Alternative S-3A (and the other alternatives that have a wma) contaminated soil is managed in place, therefore all of the groundwater alternatives need to achieve drinking water standards outside of the compliance boundary for the waste management area (except where the boundary abuts salt water). Therefore, there are two sets of NCP analysis needed for each groundwater alternative, including different calculations for how long MNA will take to achieve final groundwater cleanup levels, depending on whether the standards need to be met for the entire Site or just for outside of the compliance boundary for the wma.



5. For groundwater alternative pairings with Soil Alternatives S-1 and S-5 there are just groundwater cleanup standards (as Chemical-specific ARARs). For groundwater alternative pairings with Soil Alternative S-3A (and other soil alternatives that manage waste in place) there are cleanup standards (as Chemical-specific ARARs) for outside of the wma compliance boundary and performance standards (as Action-specific ARARs to establish monitoring standards) for inside of the compliance boundary. Regarding soil leachability requirements, Soil Alternatives S-1 and S-5 have soil cleanup standards, based on leachability standards as Chemical-specific ARARs. For Soil Alternative S-3A the leachability standards are Action-specific ARARs that establish performance standards for monitoring at the compliance boundary.

6. Incorporate into the FSA text comments EPA has made to the draft Proposed Plan on May 6, 2013.

## **SPECIFIC COMMENTS**

7. Page 1-1, §1.1.1 – In the last sentence insert “modifies and” before “supplements.”
8. Page 1-1, §1.1.2 – Section 1 also should discuss the sections of the FS not carried forward into the FSA (specifically all discussion of sediment as a media of concern and Soil Alternatives S-2, S-3, S-4, and S-6 – see General Comments, above).
9. Page 1-3, §1.3 – Either add a discussion of the changes from the FS (see general comments above) to this section or make the “FSA Changes from the FS” as a new §1.4 (including listing only the alternatives carried forward into the FSA) and remove the current §1.4 text.
10. Page 2-1, §2.2.1 – Incorporate EPA comments concerning the Soil RAOs to the draft Proposed Plan.
11. Page 2-1, §2.2.2 – Incorporate EPA comments concerning the Groundwater RAOs to the draft Proposed Plan.
12. Page 3.1, §3.1 – Change the name of S-3A to “Excavation, Off-site Disposal, Soil Cover, Monitoring, LUCs, and Five-Year Review.”
13. Page 3.1, §3.1.1 – Change Component 3 to “Maintain a two foot thick permeable soil cover over areas of contaminated subsurface soil”.

Add a Monitoring Component.

Component 1 – For the NCA area the volume of contaminated soil to be excavated is identified, but in the Marina area the volume of specific contaminants to be removed is cited. Use a consistent description for both areas (either soil volume, contaminant volume or both).

14. Page 3.2, §3.1.1 – Change title of Component 3 to “Maintain a two foot thick soil cover over areas of contaminated subsurface soil in the NCA and Marina areas”.

Add a new first paragraph that states: “The two foot thick layer of clean soil cover installed after the excavation of the NCA and Marina areas will be maintained to prevent direct contact with contaminated subsurface soils.

In the first sentence of the present first paragraph, change “WMA” to “waste management area (WMA).”



In the second sentence, change “boundary” to “extent of the soil cover and compliance boundary.” In the last sentence after “performance standards” add: “for monitoring at the compliance boundary of the WMA. In addition, Rhode Island soil leachability standards are also performance standards for monitoring at the WMA compliance boundary, but are not required to be achieved within the compliance boundary.”

15. Page 3-2, §3.1.1 – Add a new Component 4: “Component 4: Monitoring Monitoring will be established at the wma compliance boundary to ensure contaminated groundwater exceeding performance standards is not migrating beyond the compliance boundary either into areas of adjacent groundwater or into marine sediments and surface water in Allen Harbor or Narragansett Bay. Compliance monitoring will be conducted at least yearly to ensure the LUCs, described below, remain in effect and are enforced.”
16. Page 3-2, §3.1.1 – For the current Component 4 change the text to: “LUCs would be implemented to control excavation and disturbance of the two foot thick soil cover in the NCA and Marina areas and prevent exposure of the contaminated soil below the cover. In the event work is required below any cover areas, any work within the contaminated subsoil would need to be performed according to a health and safety plan and an approved soil management plan. LUCs would be established to prevent residential development within areas of the NCA exceeding unrestricted use risk standards. Within the Marina area LUCs would be implemented to permit the continued use of the area as a marina or other recreational use, as long as the two foot thick clean cover is maintained. The LUCs would also establish a requirement that any work beneath marina building foundations would need to be performed according to a health and safety plan and an approved soil management plan.”
17. Page 3-2, §3.1.1 – Before the second paragraph of the current Component 4 insert: “Component 6: 5-Year Review”
18. Page 3-3, §3.1.2 – Change the beginning of the first sentence of the second paragraph to: “Maintenance of the two foot thick clean cover, monitoring and LUCs regulating the protection of the cover and the.”  
  
Change the last two sentences to: “Maintenance of the two foot thick clean cover, monitoring and LUCs in the Marina area will permit the continued use of the area as a marina or other recreational use by preventing exposure to contaminated subsoils. Soil Alternative S-3A will achieve all Soil RAOs.”
19. Page 3-5, 2<sup>nd</sup> ¶ - The last sentence states that some property within the remediation area for soil has been transferred. Navy needs to identify how it will establish LUCs on property it no longer owns (for example, if the Navy needs to purchase an easement the cost of the easement needs to be included in the projected cost for the alternative).
20. Page 3-5, Cost – See previous comment concerning including the cost of any potential LUC easement that may be required on property the Navy no longer owns in the cost of the alternative.
21. Page 3-5, §3.2 – As previously discussed, the analysis for Groundwater Alternative G-3B needs to take into account that it might be paired with either soil alternatives that don’t manage waste in place (S-1 or S-5), in which case the alternative needs to achieve drinking water standards throughout the Site, or with soil alternatives (S-2, S-3, S-3A, S-4, S-6) which does manage waste in place (where groundwater only would need to achieve drinking water standards outside of the compliance boundary of the waste management area).



22. Page 3-5, Component 1 – The current text is written to address if this groundwater alternative is paired with Soil Alternative S-3A (as noted, above there also has to be a discussion whether Alternative G-3B could achieve groundwater cleanup standards throughout the Site Soil Alternative S-5 is selected. Regarding the current text, the text analysis needs to be revised because the waste management areas include all areas of the NCA and Marina areas where subsurface contamination is left in place under a soil cover.
23. Page 3-6, Component 2 – Need to discuss how long MNA will take after treatment under circumstances where there is a wma (such as Soil Alternative S-3A) or not (Soil Alternative S-5).
24. Page 3-7, component 2 – Regarding the second sentence of the fourth paragraph, the text states that remedial goals for sediment and soil will be determined during remedial design, however that is not accurate. Instead, a new third Component – “Monitoring” should be added. The Monitoring component should address the remedial measures (monitoring) to be taken along the saline shoreline to meet the groundwater RAO to prevent migration of groundwater contamination into sediments/surface water in Allen Harbor and Narragansett Bay. The basis (either ARAR or TBCs) for the Performance Standards for the monitoring need to be included in the FS. When paired with Soil Alternative S-3A the performance standards would be based both risk-based standards and soil leachability standards. When this groundwater alternative is paired with Soil Alternative S-5 the performance standards would only be based on risk-based standards (since all soil exceeding leachability standards would be removed under Soil Alternative S-5).

The remedial goals protective of ecological receptors in porewater, surface water, and sediment will be determined during the remedial design. Please include porewater.

25. Page 3-7, component 3 – The Navy needs to acquire legally enforceable environmental LUCs on property it no longer owns. It can't rely on non-CERCLA land use controls, since these potentially could be changed at some future time and the Navy would have no basis to prevent the change (unless a CERCLA restriction is in place). The Navy also needs to be able to take an enforcement action if there are violations of LUCs outside of current Navy property.
26. Page 3-8, component 3 – Regarding the first paragraph, the Navy needs to discuss how it will establish enforceable LUCs on property it currently owns up to the point the property is eventually transferred.

When paired with Soil Alternative S-3A the LUCs would be permanent within the compliance boundary and temporary under groundwater cleanup standards are achieved outside of the compliance boundary. When paired with Soil Alternative S-5, the LUCs are temporary throughout the Site until federal drinking water standards are achieved throughout the Site (except in any saline areas).

The fifth paragraph needs to be split off and included under a new “Component 5: 5-Year Review.”

27. Page 3-8, Contingency Remedy – the concept of a contingency remedy is not discussed in the Proposed Plan. It also is not figured into the NCP 9 criteria analysis for Groundwater Alternative G-3B. Therefore, if the selected remedy fails this contingency remedy will need to go through the FS, PP, & ROD Amendment process.
28. Page 3-9, please see the following comments on appendix e. Ecological trigger values are to be



scientifically defensible for the porewater not surface water as we comment below.

29. Page 3-10, § 3.2.2 – Regarding the third paragraph, LUCs will be protective as long as enforceable CERCLA restrictions can be established on both Navy and non-Navy property within the groundwater restriction area.
30. Page 3-12, Implementability – Regarding the second paragraph, the Navy needs to identify how it will establish LUCs on property it no longer owns (for example, if the Navy needs to purchase an easement the cost of the easement needs to be included in the projected cost for the alternative).
31. Page 3-5, Cost – See previous comment concerning including the cost of any potential LUC easement that may be required on property the Navy no longer owns in the cost of the alternative.
32. Tables 3-1, 3-2, and 3-3 – Change the title of Soil Alternative S-3A to “Excavation, Off-site Disposal, Soil Cover, Monitoring, LUCs, and Five-Year Review.”
33. Table 3-1 – For all of the Action to be Taken text, in the last sentence after “excavation,” insert “maintenance of soil covers,”
34. Table 3-1, p. 3 – Modify the Remediation Regulation citation as follows:

State of Rhode Island Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Short Title: Remediation Regulations)	DEM-DSR-01-93, Section 8.02(A) & Table 1	Applicable	These regulations set remediation standards to prevent direct contact with contaminated soil resulting from the unpermitted release of hazardous material in Rhode Island.	<p>In the NCA area excavation of the top two feet of contaminated soil exceeding industrial direct exposure criteria, maintenance of a clean 2 foot cover, LUCs to protect the cover and prevent exposure to subsurface soils, and monitoring will meet Industrial exposure standards. LUCs to prevent residential use in the NCA area will address remaining areas that exceed unrestricted use criteria for direct contact.</p> <p>In the Marina area excavation of the top two feet of contaminated soil exceeding criteria for recreational use, maintenance of a clean 2 foot cover, LUCs to protect the cover and prevent exposure to subsurface soils under the cover and marina buildings, and monitoring will achieve standards to permit continued recreational use of the Marina area.</p>
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35. Table 3-1, p. 4 - remove the last two entries.
36. Table 3-2, p. 1 – For the Federal Endangered Species Act, in the Action to be Taken text need to add the federally-listed Atlantic Sturgeon.
37. Table 3-2, p. 2 – Navy can remove the State ESA because the State habitat for the two sea turtles is off-shore of Narragansett Bay and the Least Tern is not a listed species.

38. Table 3-3, p. 2 – Modify the citation for the RI Remediation Regulations as follows:

State of Rhode Island Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Short Title: Remediation Regulations)	DEM-DSR-01-93, Section 8.02(B) and Table 2	Applicable	These regulations set remediation standards to prevent leaching of soil contaminants into groundwater and sediment/surface water resulting from the unpermitted release of hazardous material in Rhode Island.	These leachability criteria will be used to develop monitoring standards for groundwater, and sediment/porewater/surface water at the waste management area compliance boundary
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39. Table 3-4, p. 2 – For the two Safe Drinking Water Act citations, in the Action to be Taken text change the second sentence to: “If this alternative is paired the Soil Alternative S-3A then these standards will be used to establish PRGs for groundwater outside of the wma compliance boundary (and used as Action-specific Performance Standards for inside of the compliance boundary). If this alternative is paired with Soil Alternative S-5 these standards will be used to develop PRGs for the entire Site, except where the groundwater is saline.”

40. Table 3-4, p. 3 – For the Remediation Regulations, Action to be Taken text change the third sentence to: “If this alternative is paired the Soil Alternative S-3A then these standards will be used to establish PRGs for groundwater outside of the wma compliance boundary (and used as Action-specific Performance Standards for inside of the compliance boundary). If this alternative is paired with Soil Alternative S-5, these standards will be used to develop PRGs for the entire Site, except where the groundwater is saline.”

41. Table 3-5 - For the Federal Endangered Species Act, in the Action to be Taken text need to add the federally-listed Atlantic Sturgeon.

Add to the federal citations:

Floodplain Management and Protection of Wetlands	44 Code of Federal Regulations (CFR) 9	Relevant and appropriate	FEMA regulations that set forth the policy, procedure and responsibilities to implement and enforce Executive Order 11988, Floodplain Management, and Executive Order 11990, Protection of Wetlands.	Remedial alternatives (such as installation/operation of monitoring/treatment wells) conducted within the 100-year floodplain of Allen Harbor/Narragansett Bay or within federal jurisdictional wetlands will be implemented in compliance with these standards. The Navy will solicit public comment as part of the proposed plan on the measures taken through the remedial action to protect floodplain and wetland resources.
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The State ARARs are applicable for CRM. Please change the status to applicable.



42. Table 3-5, p. 2 – Navy can remove the State Endangered Species Act (ESA) because the State habitat for the two sea turtles is off-shore of Narragansett Bay and the Least Tern is not a listed species.
43. Table 3-6, p. 1 - For the MNA Guidance “Action to be Taken” text state how long MNA (after treatment) is expected to take if this groundwater alternative is paired with Soil Alternative S-3A (compliance outside compliance boundary of an wma) versus with Soil Alternative S-5 (need to achieve groundwater cleanup standards throughout the Site).

44. Table 3-6, p. 1&2 – For the two Safe Drinking Water Act citations, in the Action to be Taken text change the second sentence to: “If this alternative is paired the Soil Alternative S-3A then these standards will be used as Performance Standards for monitoring inside the compliance boundary for the waste management area. If this alternative is paired with Soil Alternative S-5 these standards will be used to monitor groundwater until treatment and MNA have achieved groundwater cleanup standards throughout the Site, except where the groundwater is saline.”

Table 3-6, p. 2 – EPA Groundwater Guidance “Action to be Taken” add at the beginning of the first sentence: “If this groundwater alternative is paired with Soil Alternative S-3A, groundwater...” and add a new last sentence: “If this alternative is paired with Soil Alternative S-5, then this groundwater alternative will achieve groundwater cleanup standards throughout the entire Site, except where the groundwater is saline.”

45. Table 3-6, p. 3 – To the federal citations add citations to whichever federal guidances are used to develop sediment monitoring standards along the shorelines of Allen Harbor and Narragansett Bay, both when this groundwater alternative is paired with Soil Alternatives S-3A and 5 (with a wma and without).
46. Figure 3-1 – Title should be “Excavation and Cover...” (unless the cover area is greater because of subsurface contamination below 2 feet that poses a commercial/industrial risk). The figure should also show the extent of LUCs required to prevent residential use in the NCA area.
47. Figure 3-3 – Show the proposed LUC boundary.
48. Page 4-1, § 4-1 – The WMA is not a remedial component of this alternative (it is an NCP interpretation of where groundwater needs to achieve cleanup standards when waste is managed in place), the remedial component is contaminated soil being covered/managed in place. This section needs to be revised to analyze the cover under the NCP criteria.

If the wma is discussed in this section, it needs to be discussed for all of the soil alternatives where waste is managed in place. If Soil alternatives S-2, S-3, S-4, and S-6 are to be carried forward through the FS Addendum and Proposed Plan, then the wma concept applies to all of them. As previously commented on, since some soil alternatives have waste managed in place and therefore will have groundwater compliance boundary's and some won't the groundwater alternatives need to present how long they will take to achieve their cleanup standards under both circumstances (achieve PRGs only outside of the compliance boundary or throughout the entire Site).

49. Page 4-3, § 4.2.1 – Also describe as a component the LUCs will be required to maintain the cover and prevent disturbance of the underlying contaminated soil.
50. Page 4-4, § 4.2.2 – The detailed NCP criteria analysis also needs to discuss the role of maintenance of



the cover and LUCs for meeting long-term protectiveness and the other criteria.

51. Page 5-1, § 5.1 - Incorporate the above comments and also the comments EPA has made to the Proposed Plan. In particular, note that for the soil alternatives that leave waste in place and that will therefore have a wma, there is no need to address leachability exceedances except for monitoring at the wma compliance boundary. The excavation alternatives that only remove soil to 2 feet and then backfill therefore have cover requirements (so long-term maintenance and monitoring of soil covers need to be added to each alternative).
52. Page 5-2, 2<sup>nd</sup> ¶ – Replace the paragraph text with “Alternative S-1 will not be protective of human health and the environment.”
53. Page 5-3, 1<sup>st</sup> ¶ - Replace the paragraph text with ““Alternative S-1 will no long-term effectiveness or permanence because to CERCLA action will be taken to address soil contamination.”
54. Page 5-5, § 5.3 – Incorporate all previous comments to this Addendum and the Proposed Plan. Also that analysis of the alternatives needs to identify how long each alternative will take to achieve groundwater cleanup standards when paired with a Soil Alternative with a wma (groundwater compliance outside of the wma compliance boundary) and when all contaminated soil is removed (groundwater compliance throughout the Site).
55. Table 5-1 – Make changes based on previous comments. In particular, Alternative S-1 does not meet the Protectiveness criterion. Also, the excavation alternatives that only remove soil to 2 feet and then backfill therefore have cover requirements (so long-term maintenance and monitoring of soil covers need to be added to each alternative).
56. Table 5-2 – Make changes based on previous comments. In particular, Alternatives G-1 does not meet the Protectiveness or ARARs criteria. Also the analysis of the other groundwater alternatives need to include two options – paired with the alternatives with a wma and paired with S-5 where there is no wma and groundwater cleanup standards must be achieved throughout the Site.

## **GENERAL COMMENTS ON APPENDIX E**

1. The primary ecological receptor populations include infauna within sediment exposed to porewater, potentially contaminated with COCs. As the pathway for exposure in surface water would be a release from upwelling groundwater COCs, the nearly instantaneous dilution of groundwater makes this exposure pathway (i.e. surface water pathway) likely to be insignificant. The potential for risk from pelagic (water column) organisms or epifauna (at the surface of the sediments) to surface water is low. A discussion of the primary exposure pathways should be provided in the document and justification for elimination of surface water of Allen Harbor as an exposure media (due to near instantaneous dilution at the point of discharge of groundwater) should be included. Subsequent discussion of ecological receptors should focus on those potentially exposed to COCs in porewater and sediments in Allen Harbor from the upwelling of contaminated groundwater.
2. The Navy developed an attenuation factor for the trigger values based on TCE concentrations measured in on-site groundwater wells (namely the MW16-05 cluster) compared to surface water samples collected in Allen Harbor. However, as indicated in General Comment above, there is near instantaneous dilution at the point of discharge of groundwater into the water column in Allen Harbor, and surface water should not be considered as the end point for comparison to groundwater concentrations at this site. Additionally, a comparison of TCE

concentrations measured in on-shore groundwater wells to off-shore piezometer groundwater samples indicates that there is very little attenuation within approximately 40-250 feet from the shoreline. The following table summarizes these data:

Date	2004	2007	2010	Groundwater TCE concentration relatively constant over time periods available?
On-Shore Well MW-16-05 (screen interval):				
Shallow (S)	1 U	0.1 UJ	Not analyzed	Yes
Intermediate (I)	470	650/700	540	Yes
Deep (D)	1,100	1,200	1,200	Yes
Bedrock (R)	860	1,200	Not analyzed	Yes
Allen Harbor Piezometers TW16-AH-:				
05	Not installed	230 J (3-5 feet) 1,110 J (8-10 feet)	Not analyzed	NA (only one event)
06	Not installed	93 J (3-5 feet) 460 (8-10 feet)	Not analyzed	NA (only one event)
07	Not installed	760 J (3-5 feet) 730 J (8-10 feet)	Not analyzed	NA (only one event)
08	Not installed	750 J (3-5 feet) 570 J (8-10 feet)	Not analyzed	NA (only one event)
13	Not installed	Not installed	0.3 U (0-1 feet) 94 (9-10 feet)	NA (only one event)
14	Not installed	Not installed	310 J (0-1 feet)	NA (only one event)
Result	--	Minimal attenuation from on-shore to off-shore groundwater	Minimal attenuation from on-shore to off-shore groundwater	--

A further comparison of TCE concentrations measured in off-shore piezometers to sediment collected in Allen Harbor indicates that total chlorinated VOCs (primarily TCE) are present in the several sediment locations at various sample depth intervals:

- Sediment AH-47 - 886 µg/kg at 0.5 - 1.0 feet (sampled in 2004)
- Sediment SD16-AH-01 - 26.5 µg/kg at 5-6 feet; non-detect at 0-0.5 foot (both sampled in 2007)
- Sediment SD16-AH-03 - 8.5 µg/kg at 3-4 feet (sampled in 2007)
- Sediment SD16-AH-03 - 11 µg/kg at 8-9 feet (sampled in 2007)



Based on these data, ecological receptors may be present where TCE in groundwater discharges into porewater and sediment in Allen Harbor. While it is noted that the 2007 piezometers were screened in Allen Harbor at intervals deeper than where most ecological receptors would be found, in 2010 the data for piezometers screened at 0-1 feet (TW16-AH-13 and TW16-AH-14) indicated the presence of COCs in the shallow depth interval where ecological receptors are present.

In summary, there is little attenuation between on-shore groundwater to off-shore piezometers. Attenuation between piezometers and sediment is minimal depending on depth and date. As such, there is no consistent data set to support the use of an attenuation factor between on-shore groundwater and either off-shore piezometers or sediment. As such, an attenuation factor should not be applied to ecological risk screening levels because the on-shore groundwater concentrations are not consistently or substantially lower in off-shore porewater and sediment samples. Accordingly, the following specific comments need to be addressed in the revision of the trigger value decision process.

#### **APPENDIX E SPECIFIC COMMENTS**

1. Page 1, Paragraph 5 and the following bullets. As discussed in General Comments above, the evidence for an attenuation factor of 500:1 or 100:1 is not applicable, as it considered the change in TCE concentrations between on-shore groundwater to off-shore surface water; off-shore surface water is not the ecological pathway end point, and there is no consistent attenuation between on-shore groundwater and off-shore piezometers and sediments. The on-shore groundwater data indicate potential COC concentrations in groundwater near the harbor exceeding the proposed ecological screening levels. The primary receptor populations include infauna within sediment exposed to porewater (e.g. meiofauna, shellfish, worms). As discussed above, exposure of pelagic organisms (plankton, invertebrates and fish) in open water of the harbor should be eliminated as a major ecological exposure pathway. The exposure points are therefore to organisms exposed to sediments and porewater in Allen Harbor resulting from the apparent upwelling of contaminated groundwater.

The decision to evaluate the installation of the bio-barrier should be triggered if the screening values (unadjusted) are exceeded in sentinel wells along the shoreline. If these values are exceeded, then an investigation should be performed to assess potential exceedances in porewater of Allen Harbor sediments. This investigation may be accomplished by either collection of sediment pore water samples, or shallow groundwater from piezometers (0 to 1 ft), representing porewater concentrations. Exceedances of unadjusted ecological screening values (presented in Table 1 of the Navy document) would indicate exposures of receptors above acceptable risk levels, and require The discussion of next steps to possibly include the implementation of the contingency remedy.

2. Page 2, First Bullet (Step 1). It is recommended that Step 1 remains the same, with the trigger levels used, but without "adjusting" trigger levels by any attenuation factor.
3. Page 2, Second Bullet (Step 2). This bullet should include sampling of sediment porewater (or calculation of porewater concentrations from sediment measurements). Alternatively, sampling of shallow piezometers (0-1 ft) may be used to represent sediment porewater concentrations to be compared to trigger values. If data reviewed in Step 2 show exceedances of human health or ecological screening values, then the equivalent of a SLERA screening has already been completed. The second bullet under Step 3 ("Yes") should become the second bullet under Step 2.

4. Page 2, Third Bullet (Step 3). Remove Step 3.
5. Table 1. Please footnote the Human Health and Ecological Screening Levels to direct the reader to the source of these values (Attachment B).
6. Figure 1. Modify Figure 1 to correspond to the changes in Step 2 and removal of Step 3 recommended above.
7. Attachment A, Figure 4-31 - Provide depth interval of collected sediment samples.
8. Attachment B - Support Documentation for Ecological Screening Levels. This document was prepared by TetraTech for the Navy in May 2010. This document uses standard methods and literature for the evaluation of ecological screening criteria for use at NCBC Davisville. The goal of the document was to propose acceptable screening values in marine water. The document recommends using USEPA Region 3 BTAG ESVs as conservative values based on a review of available literature. They remain conservative values to use as ESLs. The Region 3 ESVs have not been updated since July 2006 so no new values are available, and the selected ESVs do not require updating.

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If you have any questions with regard to this letter, please contact me at (617) 918-1384.

Sincerely,



Christine A.P. Williams, RPM  
Federal Facilities Superfund Section

cc: Richard Gottlieb, RIDEM (via e-mail only)  
Joan Taylor, RIDEM  
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